bypass and coronary artery bypass grafting. The patency rate needs to be shown to be close to that for conventional coronary artery bypass grafting. Meanwhile, off pump coronary artery bypass will increasingly dominate for the next few years, accounting perhaps for half of all coronary artery bypass graft operations soon, but port access coronary artery bypass may yet resurface as its costs come down and its technology and ease of use improve.

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Since writing the editorial BG has been reimbursed expenses for speaking at a medical device technology conference and is an adviser to CTS Cardiothoracic Systems, which manufactures stabilisers, though he has declined a fee for being on its panel.

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Reducing errors in medicine

It's time to take this more seriously

"Ladies and gentlemen, welcome aboard Sterling Airline's Flight Number 743, bound for Edinburgh. This is your captain speaking. Our flight time will be two hours, and I am pleased to report both that you have a 97% chance of reaching your destination without being significantly injured during the flight and that our chances of making a serious error during the flight, whether you are injured or not, is only 6.7%. Please fasten your seatbelts, and enjoy the flight. The weather in Edinburgh is sunny."

Would you stay aboard? We doubt it.

Luckily, the safety statistics in airline travel are far, far better than these figures. Between 1990 and 1994 United States airline fatalities were 0.27 per 1 000 000 aircraft departures, less than one third the rate in midcentury, despite vast increases in the complexity and volume of our aviation systems. One estimate is that a modern passenger would have to fly continuously for 20 000 years in order to reach a 50% chance of injury in an airplane accident.

In health care it is a totally different story. With the rising complexity and reach of modern medicine have come startling levels of risk and harm to patients. One recent study in two of the most highly regarded hospitals in the world discovered serious or potentially serious medication errors in the care of 6.7 out of every 100 patients,[1] and the Harvard Medical Practice Study, which reviewed over 30 000 hospital records in New York state, found injuries from care itself ("adverse events") to occur in 3.7% of hospital admissions, over half of which were preventable and 13.6% of which led to death.[2] If these figures can be extrapolated to American health care in general then over 120 000 Americans die each year as a result of preventable errors in their hospital care. The costs of medical errors are high in financial terms as well, estimated to be almost $4700 per preventable adverse drug event in one American teaching hospital.[3]

Data like these are beginning to mobilise considerable public and professional sentiment to redesign healthcare processes and systems to become much safer in future. Some of this sentiment is channelled into harsh forms of surveillance and punishment. When medical errors do surface, often with heart rending accounts of the suffering of the primary victims—the patients harmed—the reaction in medical settings is most commonly an attempt to fix blame and to punish someone.

This will not work. If we can take any lessons from the stunning progress in safety in aviation and other high risk industries it is that fear, reprisal, and punishment produce not safety, but rather defensiveness, secrecy, and enormous human anguish. Scientific studies in human factors engineering, organisational psychology, operations research, and many other disciplines make it clear that, in complex systems, safety depends not on exhortation, but rather on the proper design of equipment, jobs, support systems, and organisations. If we truly want safer care we will have to design safer care systems.

In the United States a wave of effective safety improvement is starting. The American Medical Association has formed the National Patient Safety Foundation, convening leaders from many sectors in health care to think together and take action. The Veterans Health Administration is undertaking sweeping changes in its care system to reduce medical errors and has established four centres of excellence to foster the needed multidisciplinary research to design safer systems of care. The Institute for Healthcare Improvement has sponsored several national collaborative improvement projects on reducing medical errors and adverse drug events, with substantial gains in participating hospitals.

Similar activity in Europe and elsewhere would be timely and welcome. Studies in Australia,[4] Israel,[5] the United Kingdom[6 7] and elsewhere, suggest levels of error and hazard in patient care that are no lower than in America. Moreover, a significant proportion of the leading scientific work on safety and errors in complex systems has come from European researchers. To help increase knowledge and focus on patient safety as an issue for research and action world wide, we will be editing a special theme issue of the *BMJ* on patient safety and medical errors.

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We now invite the submission of manuscript papers to be considered for inclusion in this theme issue. The issue will appear in March 2000, and the closing date for submissions is 30 November 1999. Examples of topics of special interest include (but are by no means limited to) the following:

- Error-reporting systems, especially non-punitive reporting
- The safety of medical equipment and devices
- Approaches to team training and improving interactions in medical care
- Innovative systems and procedures to improve safety and to decrease or mitigate the effects of errors—for example, medication administration, operating room management, and emergency care
- The use of simulation for training and system improvement
- Approaches to safety in non-health-care sectors that may hold promise for adapting to medical care
- Epidemiological studies of the distribution and patterns of medical error and threats to patient safety
- Workplace safety for healthcare employees and professionals.

We are especially interested in innovative approaches to improving patient safety, in empirical evaluations and experiments, and in multidisciplinary efforts involving not just clinicians but also human factors specialists, engineers, and others who may not normally think of their work as relevant to health care. As always in selecting papers, we will have very much in mind the *BMJ* reader-practitioners and how best to help them understand and participate in improving patient safety.

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The Institute for Healthcare Improvement, which DMB works for, is a non-profit organisation which offers training and opportunities to take part in demonstration projects for the improvement of health care, including the reduction of errors. LLL lectures internationally on error prevention and sometimes receives honorariums for this.

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Chaperones for genital examination

Provide comfort and support for the patient and protection for the doctor

Papers p 159

Never, sometimes, or always characterise the wide variation in individual doctors' practice of using chaperones during genital and rectal examination. This variation is not confined to general practice.[1] In this week's issue Torrance et al report a survey of chaperone policy in genitourinary medicine clinics (p 159).[2] Some clinics would appear to allow male doctors to examine female patients without the presence or offer of a chaperone. Such practice is surely beyond justification.

Some may argue that the use of chaperones is an area where physician discretion is more relevant than policy. Certainly not all patients choose to have a chaperone present during intimate examinations, and it may be difficult to provide chaperones in some settings. However, in this area of quality and clinical risk guidelines rather than discretion need to dictate practice.

What considerations should direct the use of chaperones? Several studies have sought patient preferences in primary and secondary healthcare settings,[3–7] although not in genitourinary medicine. The findings show remarkable consistency. Male and female patients differ markedly in their desire for a chaperone. Most women want the offer of a chaperone and feel uncomfortable asking for one if it is not offered. Most teenagers want a chaperone during intimate examinations, and a family member may be the preferred choice. Many women prefer having a third party present when the examining doctor is male, fewer if the examining doctor is female. For women a female nurse is generally the preferred choice as chaperone, would be accepted as a routine part of the clinical examination, and is generally viewed as having a positive supporting role during the examination. Men, however, particularly teenagers, find the presence of a female nurse as observer during genital examination unwelcome. Interestingly, a substantial proportion of patients in primary care didn't mind if a chaperone was present or not,[7] although this finding may reflect an older patient sample and familiar doctors.

These findings suggest some strong imperatives. Every woman having a genital or rectal examination should be offered a chaperone. Failure to offer one deprives patients of support they may want, and non-availability is an unacceptable excuse. It is unacceptable for a teenage woman to be alone with an unfamiliar male physician for genital examination. Moreover, it shouldn't be assumed that a female nurse will be an acceptable chaperone for a man.

Genital examination is one area of medical practice where the sex of the patient and sex of the doctor have a significant influence on patient preferences. Clear differences exist in the preferences of male and female patients, and these can and should be accommodated. In genitourinary medicine it is difficult to argue against a female nurse routinely being present during the

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